

The Invention Claimed Is:

1. Apparatus for improving the performance of the internal combustion engine of a motor vehicle having fuel injectors, said apparatus comprising in combination:

an O<sub>2</sub> sensor for sensing the amount of O<sub>2</sub> in exhaust produced by said internal combustion engine;

at least one supplemental sensor for sensing a variable operational factor relating to the operation of said internal combustion engine;

a programmed electronic control unit for receiving O<sub>2</sub> sensor signals from said O<sub>2</sub> sensor; and

a controller for altering the O<sub>2</sub> sensor signals from said O<sub>2</sub> sensor prior to the O<sub>2</sub> sensor signals being received by said electronic control unit, said at least one supplemental sensor directly operatively associated with said controller and sending supplemental sensor signals to said controller and said controller adjusting said sensor signals and sending the adjusted supplemental sensor signals to said electronic control unit, said electronic control unit in response to receipt thereof of both said altered O<sub>2</sub> sensor signals from said O<sub>2</sub> sensor and of said adjusted supplemental sensor signals producing modified fuel injector control signals controlling operation of said fuel injector .

2. The apparatus according to Claim 1 for improving the performance of the internal combustion engine of a motor vehicle including a plurality of supplemental sensors for sensing a plurality of variable operational factors relating to the operation of said internal combustion engine and wherein said controller directly receives supplemental sensor signals from said plurality of supplemental sensors and adjusts the supplemental sensor signals from said plurality of supplemental sensors prior to the supplemental sensor signals thereof being received by said electronic control unit.

3. The apparatus according to Claim 1 for improving the performance of the internal combustion engine of a motor vehicle wherein said supplemental sensor is a manifold absolute pressure sensor, said controller adjusting the sensor signals of said manifold absolute pressure sensor.

4. The apparatus according to Claim 1 for improving the performance of the internal combustion engine of a motor vehicle wherein said supplemental sensor is an RPM sensor, said controller adjusting the sensor signals of said RPM sensor.

5. The apparatus according to Claim 1 for improving the performance of the internal combustion engine of a motor vehicle wherein said supplemental sensor is an engine temperature sensor, said controller adjusting the sensor signals of said engine temperature sensor.

6. The apparatus according to Claim 1 for improving the performance of the internal combustion engine of a motor vehicle wherein said supplemental sensor is an intake air temperature sensor, said controller adjusting the sensor signals of said air temperature sensor.

7. The apparatus according to Claim 1 for improving the performance of the internal combustion engine of a motor vehicle wherein said supplemental sensor is a throttle position sensor, said controller adjusting the sensor signals of said throttle position sensor.

8. A method for improving the performance of the internal combustion engine of a motor vehicle having fuel injectors, an O<sub>2</sub> sensor for sensing the amount of O<sub>2</sub> in exhaust produced by said internal combustion engine, at least one supplemental sensor for sensing a variable operational factor relating to the operation of said internal combustion engine and a programmed electronic control unit for receiving sensor signals from said O<sub>2</sub> sensor, said method comprising the steps of:

altering O<sub>2</sub> sensor signals produced by the O<sub>2</sub> sensor;  
adjusting supplemental sensor signals produced by said at least one supplemental sensor;

sending the altered O<sub>2</sub> sensor signals to the electronic control unit;

sending the adjusted supplemental sensor signals to the electronic control unit; and

at said electronic control unit, producing modified fuel injector control signals responsive to receipt of both said altered O<sub>2</sub> sensor signals and said adjusted supplemental sensor signals to control operation of said fuel injectors.

9. The method according to Claim 8 wherein said motor vehicle includes a plurality of supplemental sensors for sensing a plurality of variable operational factors relating to the operation of said internal combustion engine and including the step of adjusting the supplemental sensor signals from said plurality of supplemental sensors prior to the supplemental sensor signals thereof being received by said electronic control unit.

10. The method according to Claim 8 wherein said supplemental sensor signals are manifold absolute pressure sensor signals.

11. The method according to Claim 8 wherein said supplemental sensor signals are RPM sensor signals.

12. The method according to Claim 8 wherein said supplemental sensor signals are engine temperature sensor signals.

13. The method according to Claim 8 wherein said supplemental sensor signals are intake air temperature sensor

signals.

14. The method according to Claim 8 wherein said supplemental sensor signals are throttle position sensor signals.

15. The method according to Claim 8 additionally including the step of monitoring the O<sub>2</sub> sensor signals produced by the O<sub>2</sub> sensor, said step of adjusting the supplemental sensor signals being carried out in response to changes in said monitored O<sub>2</sub> sensor signals.